# Article information:

A comprehensive review of renewable energy source on energy optimization of black liquor in MSE using steady and dynamic state modeling, simulation and control - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S1364032118307159>

# Article summary:

1. The article discusses the importance of energy efficiency in the pulp and paper industry, and how black liquor can be used as a biofuel to generate steam/energy.

2. It reviews various energy efficient configurations of MSE and their optimization to achieve higher energy efficiency.

3. It also looks at developments in linear and nonlinear steady-state and transient models and control of MSE, as well as challenges associated with numerical techniques for solving complex nonlinear problems.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable, providing an overview of the current state of renewable energy sources in the pulp and paper industry, as well as discussing potential solutions for improving energy efficiency. The article is well-researched, citing numerous sources throughout its text. The authors provide a comprehensive review of existing research on the topic, including both linear and nonlinear models for simulation and control of MSE systems.

The article does not appear to have any major biases or one-sided reporting; it presents both sides equally by discussing both the benefits and challenges associated with renewable energy sources in this industry. Furthermore, it does not contain any promotional content or partiality towards any particular solution or technology.

The only potential issue with the article is that it does not discuss possible risks associated with using renewable energy sources in this industry; however, this is likely due to space constraints rather than intentional omission.

# Topics for further research:

* Renewable energy sources risks
* Pulp and paper industry energy efficiency
* Linear and nonlinear models for MSE systems
* Simulation and control of renewable energy sources
* Benefits of renewable energy sources in pulp and paper industry
* Challenges of renewable energy sources in pulp and paper industry

# Report location:

<https://www.fullpicture.app/item/126517a5d7b49e837b7bc56444e399dd>